PATENT COOPERATION TREATY

PCT

TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference YCT-1013			ce	FOR FURTHER A	CTION	See Form PCT/IPEA/416
International application No.				International filing dat	e (day/month/year)	Priority date (day/month/year)
PCT/JP2005/002417			417	17.02.200	5	18.02.2004
Internati	International Patent Classification (IPC) or national classification and IPC					
	C25B1/10 (2006.01), B09B3/00 (2006.01), C01B3/02(2006.01), C10K1/08(2006.01), C25B15/08 (2006.01)					
Applicant EBARA CORPORATION						
1.	1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.					
2.	This R	EPORT consists	of a total of _	6	sheets, including	g this cover sheet.
3.	This re	eport is also accor	mpanied by Al	NNEXES, comprising:		
	a.	(sent to the	applicant and	to the International Bur	reau) a total of 3	sheets, as follows:
	a. (sent to the applicant and to the International Bureau) a total of sheets, as follows: sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).				•	
	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.					
	. г	¬	T	D		
	b. <u></u>	(sent to the	international i	<i>bureau only)</i> а total of (indicate type and number	r of electronic carrier(s))
	, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see					
				rative Instructions).	mercared in the Supple	mental Box Relating to Sequence Listing (see
4.	This re	eport contains ind	ications relati	ng to the following item	s:	
	\boxtimes	Box No. I	Basis of the	report		
	Ц	Box No. II	Priority			
	Ш	Box No. III	Non-establi:	hment of opinion with regard to novelty, inventive step and industrial applicability		
		Box No. IV	Lack of unit	y of invention		
	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					
Box No. VI Certain documents cited			uments cited			
		Box No. VII	Certain defe	ects in the international a	application	
	\boxtimes	Box No. VIII	Certain obse	ervations on the internat	ional application	
Date of submission of the demand Date of completion of this report				s report		
					•	
Name and mailing address of the IPEA/JP				Authorized officer		
Facsimile No.				Telephone No.		

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2005/002417

Box	No. I	I Basis of the report			
1.		th regard to the language, this report is based on the international alicated under this item.	application in the language in which it was filed, unless otherwise		
	This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of: international search (Rule 12.3 and 23.1(b)) publication of the international application (Rule 12.4) international preliminary examination (Rule 55.2 and/or 55.3)				
2.					
		-	as originally filed/furnished		
	_	pages* re	ceived by this Authority on		
	\bowtie	the claims: nos. 1–15	as originally filed/furnished		
		nos.*	as amended (together with any statement) under Article 19		
		nos.* _16-24 re	ceived by this Authority on13.10.2005		
		nos.* re	ceived by this Authority on		
	\bowtie	the drawings: sheets fig. 1-24	as originally filed/furnished		
		sheets* re	ceived by this Authority on		
		sheets* re	ceived by this Authority on		
		a sequence listing and/or any related table(s) – see Supplementa	l Box Relating to Sequence Listing.		
3.	Ш	The amendments have resulted in the cancellation of:			
		the claims, nos. the drawings, sheets/figs			
4.			ats annexed to this report and listed below had not been made, since		
		the description, pages			
		the claims, nos.			
		the sequence listing (specify):			
*	If ite	any table(s) related to sequence listing (specify): tem 4 applies, some or all of those sheets may be marked "superse."			

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

Вох		Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement			
1.	Statement				
	Novelty (N)	Claims	1-24	YES	
		Claims		NO	
	Inventive step (IS)	Claims	4, 15, 20, 23, 24	YES	
		Claims	1-3, 5-14, 16-19, 21, 22	NO	
	Industrial applicability (IA)	Claims	1-24	YES	
		Claims		NO	

- 2. Citations and explanations (Rule 70.7)
 - Document 1: JP 2002-526655 A (The Regents of the University of California), 20 August 2002, paragraphs [0005] to [0031]
 - Document 2: JP 04-041689 A (Mitsubishi Heavy Industries, Ltd.), 12 February 1992, page 2, upper right column, line 1 to page 3, upper right column, line 2; and fig. 1
 - Document 3: JP 11-139803 A (Osaka Gas Co., Ltd.), 25 May 1999, paragraphs [0003] and [0011] to [0013]
 - Document 4: JP 04-350188 A (Japan Atomic Energy Research Institute), 04 December 1992, entire text

The inventions set forth in claims 1, 13, 16 and 22 do not involve an inventive step in the light of document 1. The optimization of the temperature is merely a simple design matter.

The inventions set forth in claims 2, 3, 5, 6, 17, 18 and 19 do not involve an inventive step in the light of documents 1 and 2. It would have been easy for a person skilled in the art to conceive of modifying the high-temperature steam electrolysis method disclosed in document 1 so that the temperature is increased by means of a heat exchange technique, like in the invention

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

disclosed in document 2. Furthermore, the selection of the heat source to be used in such a configuration is merely a simple design matter.

The invention set forth in claim 7 does not involve an inventive step in the light of documents 1 and 2. The optimization of the electrolysis voltage is merely a simple design matter.

The invention set forth in claim 8 does not involve an inventive step in the light of documents 1 to 3. It would have been easy for a person skilled in the art to conceive of modifying the high-temperature steam electrolysis method disclosed in document 1 so that the sulfur content of the gas is decreased to a level of 1 ppb by volume or lower, like in the invention disclosed in document 3.

The inventions set forth in claims 9 to 12 and 21 do not involve an inventive step in the light of documents 1 to 3. The selection of a suitable reducing gas is merely a simple design matter.

The invention set forth in claim 14 does not involve an inventive step in the light of document 1. Devices for reacting gasses, wherein the operating conditions are optimized by means of a flow rate control valve, are well known.

Meanwhile, document 4 merely discloses a steam electrolysis method wherein carbon monoxide is employed in order to reduce the consumption of power.

On the other hand, the inventions set forth in claims 4, 15, 20, 23 and 24 are not disclosed in any of the documents that are cited in the international search report, and would not have been obvious to a person skilled in the art.

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International application No.
PCT/JP2005/002417

Rox	No. VI	Certain documents cite	d			
1. Certain published documents (Rule 70.10)						
		Application No. Patent No.		Publication date (day/month/year)	Filing date (day/ <i>month/year</i>)	Priority date (valid claim) (day/month/year)
	JP	2004-060041	A	26.02.2004	25.07.2002	25.07.2002
		[E,X]				
2.	Non-writte	n disclosures (Rule 70.9)				
	TVOII-WITTE				D	ate of written disclosure
	TVOIP WITH	Kind of non-written disclos	sure	Date of non-written d (day/month/yec	isclosure referri	ate of written disclosure ng to non-written disclosure (day/month/year)
			sure	Date of non-written d (day/month/yea	isclosure referri	
			sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
			sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
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	- Tool-writte		sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
	Non-writte		sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
			sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
	- Tool-willie		sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
	- Tool-writte		sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
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	Non-writte		sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure
	- Tool-writte		sure	Date of non-written d (day/month/yea	isclosure referri	ng to non-written disclosure

International application No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY	PCT/JP2005/002417
Box No. VIII Certain observations on the international application	
The following observations on the clarity of the claims, description, and drawings or on the the description, are made:	question whether the claims are fully supported by
Claim 7 includes the wording "nec	essary energy."
However, the definition of the phrase i	n question is
unclear.	